

Title (en)

Helical compression spring for a vehicle suspension

Title (de)

Schraubendruckfeder für eine Fahrzeugaufhängung

Title (fr)

Ressort de compression hélicoïdal pour une suspension de véhicule

Publication

**EP 1215059 A3 20040204 (EN)**

Application

**EP 01129850 A 20011214**

Priority

JP 2000379738 A 20001214

Abstract (en)

[origin: EP1215059A2] The present invention is directed to a helical compression spring (5) which is mounted on a vehicle body to be compressed between an upper seat (3) and a lower seat (4). The spring is formed to provide an end coil center line (OF) connecting the centers of an upper end coil (5b) and a lower end coil (5a) to be offset to a coil axis (CA) of a body portion of the spring. A pitch of the lower end coil is set to tilt a lower end plane (LS) of the spring at a first angle (  $\alpha$  ) to the lower seat in a direction for shortening the longitudinal length of one side of the spring closer to the end coil center line than the coil axis, in an unloaded state of the spring, and/or a pitch of the upper end coil (5b) is set to tilt an upper end plane (45) of the spring at a second angle (  $\beta$  ) in a direction for shortening the longitudinal length of the other side of the spring closer to the coil axis than the end coil center line, in the unloaded state. And, the pitch of the lower end coil (5a) is set to tilt the lower end plane (LS) at a third angle (  $\gamma$  ) to the lower seat on a plane including the end coil center line perpendicular to a plane including the end coil center line and the coil axis, in the unloaded state, and/or the pitch of the upper end coil is set to tilt the upper end plane at a fourth angle to the upper seat on that plane, in the unloaded state. <IMAGE>

IPC 1-7

**B60G 15/06**; **F16F 1/04**

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

- [A] FR 2670437 A1 19920619 - ALLEVARD IND SA [FR]
- [A] US 6082720 A 20000704 - DUCLOUX ANTOINE [FR], et al
- [A] EP 0976590 A1 20000202 - CHUO HATSUJO KK [JP]
- [A] EP 0976591 A1 20000202 - CHUO HATSUJO KK [JP]
- [DA] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 15 6 April 2001 (2001-04-06)
- [A] PATENT ABSTRACTS OF JAPAN vol. 009, no. 162 (M - 394) 6 July 1985 (1985-07-06)

Cited by

EP1452352A1; FR2860753A1; US6883790B2; GB2418002A; WO2005035281A3

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